Michigan Stream Team Meeting Minutes
January 14, 2009

Attendees:

Ralph Reznick
Joe Rathbun
John Suppnick
Chad Kotke
Pat Fowler
Pat Durack
Andrea Ania
Jim Hazelman
Jim Watling
Bethany Matousek
Valerie Strassberg
Cyndi Rachol
Steve Rheaume
Travis Dahl
Sharon Hanshue
Kristine Boley-Morse
Chris Freiburger
Dave Fongers
Jim Selegean
Sean Duffy
Coreen Strzalka

Commitments/Action Items:

- **Ralph** will send out the text and graphics of the USGS report to all the Team's agencies by Friday January 30. **Cyndi** has asked for comments on the draft USGS report by February 6.
- **Joe** will send the list of ungaged/good bug locations to the Team prior to the next meeting, and will also send the draft text describing how to survey an ungaged location to the Team.
- **Travis** will get information on the ACOE's use of acoustic dopler profilers for measuring sediment loads.
- **Whole team** will get **Chris** ideas and needs for sediment transport data, to discuss at the next meeting.

Next meeting:

Either March 3 or 5, 2009, 9:00 – 12:00; location to be announced

Meeting Minutes

The meeting was held at the U.S. Fish and Wildlife Service office in Lansing. Introductions were made, and the meeting proceeded through the agenda.

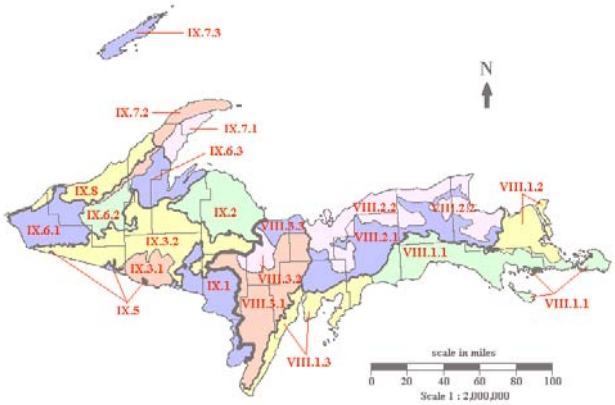
Item 1 – Regional Reference Curve Project Update

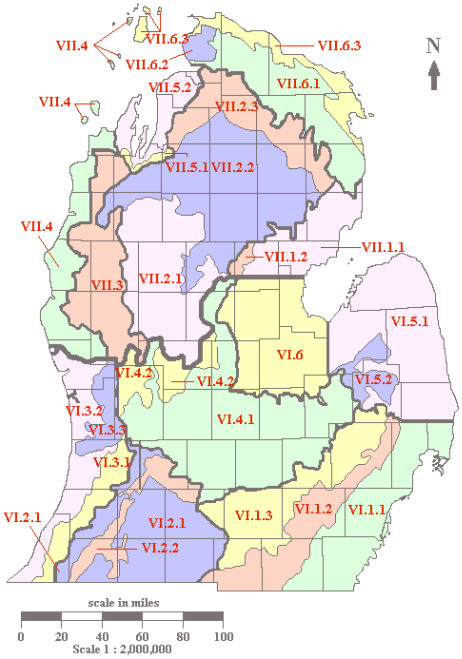
Cyndi and **Kristine** led a discussion of the reference curve project, including a power point presentation illustrating the draft curves. Surveys were completed at 38 locations across the state, and 4 types of curves were shown and discussed:

- Drainage area (DA) vs. bankfull width (Wbf)
- Drainage area vs. bankfull depth (Dbf)
- Drainage area vs. bankfull cross-sectional area (Abf)
- Drainage area vs. bankfull discharge (Qbf)

As a first cut at stratifying the data, they were divided by ecoregion (Albert's 1995 USDA version, not the similar EPA Level 3 ecoregions). Due to data density and comparable land uses, the data were divided into 2 geographic strata:

- The Southern Lower Michigan ecoregion (ecoregion VI in the map below)
- A combination of three ecoregions for the rest of the state; Northern Lacustrine-Influenced Lower Michigan (VII), Northern Lacustrine-Influenced Upper Michigan and Wisconsin (VIII), and Northern Continental Michigan, Wisconsin, and Minnesota (IX)





It was acknowledged that the northern strata may be too broad and diverse, and future data collection may split it up.

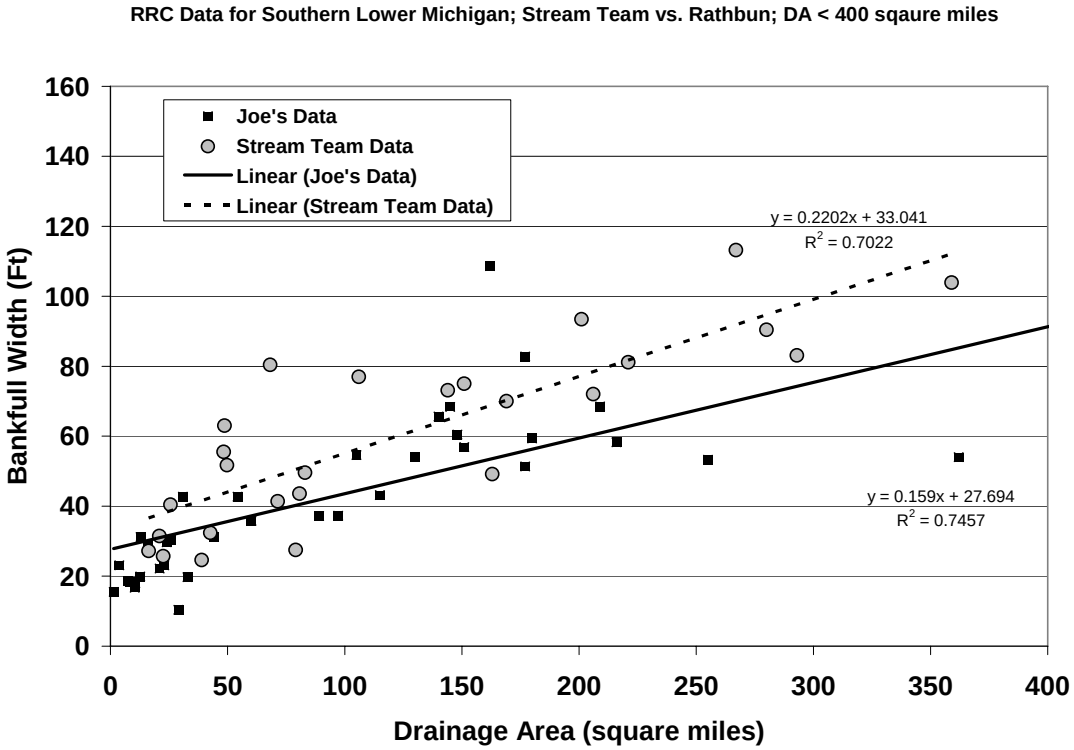
Correlation coefficients were strongest for the DA vs. Wbf and DA vs. Abf plots in both geographic regions (r^2 = 0.6 to 0.7) and for DA vs. Qbf (r^2 > 0.8), and weaker for the DA vs. Dbf plots (r^2 < 0.3).

These plots triggered much good discussion:

- **Dave** suggested that plots be made of Qbf vs. the three channel dimensions.
- **Pat F.** suggested that historic land use changes altered width to depth ratios, which might explain the poor DA vs. Dbf relationships.
- **Jim** recommended that the data be stratified by valley type. **Cyndi** said the data for this were not collected, though very few of the surveyed locations were confined.
- There were several questions about the 95% confidence intervals (CIs) vs. scatter of the plotted points, though these may have been misplaced as CIs are related more to the strength of the regression line than to the scatter of the constituent data points (according to **Bob Day** of MDEQ).
- There was also much discussion of whether these ecoregions are too broad.
- There was some discussion of the calculation of Manning's n using Jarrett's method, and suggestions were made for alternate approaches.
- It was noted that there is generally good agreement between the calculated Qbf and the 1.5 year and 2 year return intervals at the gages, with a few exceptions that may be explainable.
- **Dave** volunteered to calculate curve numbers for each of the gage stations in the data set, and later he and **Cyndi** worked together to do so and did not find that it helped the regressions. Update: This has been completed and was not found to improve interpretation of the data.
- **John** wondered if locations where the hydrology is dominated by spring snow melt might yield a strong regression.
- **Valerie** recommended looking at Will Harmon's presentation at the 2008 North Carolina Stream Restoration conference; the link is here:

http://www.bae.ncsu.edu/programs/extension/wqg/srp/2008conference/final_agenda.html

- **Joe R.** pointed out that the DA vs. Wbf relationship for Southern Michigan is comparable to data he collected around 2000 from sites with "excellent" macroinvertebrate communities from a similar ecoregion (EPA's Level 3 Southern Michigan-Northern Indiana Till Plain ecoregion; graph below). This supports the Team's earlier proposal to collect additional data for the curves from ungaged locations with healthy biological communities.



- It was agreed that the Team wants to survey additional stations to fill in geographic gaps, though currently there is no funding to support this. **Joe** will get the list of ungaged/good bug locations to the Team prior to the next meeting, and will also send the draft text describing how to survey an ungaged location to the Team.
- **Jim** noted that there might be Planning and Assistance funds from US ACOE to support additional surveys. It requires a 50% match, is available to state, city or county governments, and in-kind contributions count as match.
- Report reviews: two reports will come from this work; the USGS report and **Kristine**'s thesis. **Ralph** will be the gatekeeper on reviews, and **Chris** suggested that there be one set of comments for each of the Team's agencies, which would be forwarded to **Ralph**. **Ralph** will send out the text and graphics of the USGS report to all the Team's agencies by Friday January 30. **Cyndi** asked for comments on the draft USGS report by February 6. **Kristine** will prepare a draft of her thesis by March 2009.

Item 2 – Alternatives for Sediment Rating Curve Development

Cyndi lead a discussion of the need for sediment rating curves. The idea was introduced at an earlier meeting, as desirable for predicting sediment loads in dam removal projects. USGS has used acoustic doppler current profilers (ADCP) to measure sediment transport, in Missouri, and there are two such units

in Michigan. She wasn't sure if there are limits on their application vs. river size, or sediment size. **Travis** noted that the ACOE has used similar units in Mississippi and Illinois, and will get information on the results.

Steve R. and **Cyndi** are looking into the ADCP data collected by USGS-MI in the last 5 years, and whether it can be used to estimate sediment transport.

John noted that the many sand traps around the state could provide an estimate of sediment transport rates, and **Travis** noted the same is true for the 91 Great Lakes harbors the ACOE works on.

Chris proposed that the Team establish a subcommittee to assess the everyone's interests and needs for sediment transport data. Get ideas to Chris, and we'll discuss at the next meeting.

Sharon suggested we invite Dana Infante of MSU to a future meeting to talk about her sediment transport work.

Item 3 – October Rosgen Training in Michigan

Chris said that the course in Marquette will be limited to the usual 40 attendees; that Minnesota hoped to send 20; that 7-8 people from DEQ would attend, plus 1 from NRCS and 5 from MDOT, and that he was awaiting word from other agencies. **Pat F.** will get feedback from the USFS staff. **Chris** needs a head count by January 28. Stream Team members probably won't help with the course, like we did with the Verry/Aadland courses, since Rosgen wants the team leaders to have taken all 4 of his courses.

It is expected that the second Rosgen course will be given in Minnesota in 2010, and that again the government agency staffs would be given first shot at attending it.

Item 4 – Additional Training Alternatives for 2009

Due to budget problems, there are no current plans to conduct further training beyond the Rosgen courses. **Jim** and **Valerie** mentioned that the Stewardship Network sponsors monthly 1-hour presentations via a webcast. It was agreed that training on the regional reference curve results might be valuable to several audiences.

Ralph and **Valerie** will work on short-term training ideas.

One big-picture idea discussed was a North Carolina-style conference on stream restoration in Michigan.

Item 5 – Issues of Importance from Those in Attendance

Jim noted that the Great Lakes Commission will sponsor a webinar on a web-based toolkit for assessing sedimentation and erosion, on January 28.

Dave will add the US ACOE logo to the survey protocol document, and their name to the list of agencies.

Update: **Ralph** circulated an apology for our recent email snafu, and **Dave** has set up a closed Listserv that will prevent the problem from reoccurring.

Next Meeting:

The next Stream Team meeting will be on **either March 3 or 5, 2009**, from 9:00 to 12:00. The location will be announced.

(Recorded by Joe Rathbun, MDEQ)